

Title (en)

COMBINED SYSTEM FOR PRODUCING STEEL AND METHOD FOR OPERATING THE COMBINED SYSTEM

Title (de)

ANLAGENVERBUND ZUR STAHLERZEUGUNG UND VERFAHREN ZUM BETREIBEN DES ANLAGENVERBUNDES

Title (fr)

ENSEMBLE D'INSTALLATIONS PERMETTANT LA PRODUCTION D'ACIER ET PROCÉDÉ PERMETTANT DE FAIRE FONCTIONNER L'ENSEMBLE D'INSTALLATIONS

Publication

EP 3080306 B1 20181031 (DE)

Application

EP 14815579 A 20141211

Priority

- DE 102013113958 A 20131212
- EP 2014003316 W 20141211

Abstract (en)

[origin: CA2930451A1] The invention relates combined system for producing steel, comprising a blast furnace (1) for producing pig iron, a converter steel mill (2) for producing crude steel, a gas line system for gases, said system operating when pig iron and crude steel is being produced, and a power plant (3) for generating energy. Said power plant (3) is designed as a gas turbine power plant or gas turbine and steam turbine power plant and is driven by gas which comprises at least one partial amount of the blast furnace sealing gas (7) produced during the generation of crude iron in the blast furnace (1) and/or a partial amount of converter gas (9) produced in the converter steel mill (2). According to the invention, the combined system also comprises a chemical plant (12) and a biotechnological plant (13), said power plant (3), the chemical plant (12) and the biotechnological plant (13) being arranged with respect to the supply of gas in a parallel circuit. Said gas line system comprises a gas distribution device (14) which can be controlled in an operational manner and is used to divide the gas mass flows guided to the power plant (3), the chemical system (12) and the biotechnological system (13). The invention also relates to a method for operating the combined system.

IPC 8 full level

C01B 3/12 (2006.01); **C01B 3/18** (2006.01); **C01B 3/38** (2006.01); **C01B 3/56** (2006.01); **C12P 7/06** (2006.01); **C21B 5/06** (2006.01); **C21B 7/00** (2006.01); **C21C 5/28** (2006.01); **C21C 5/38** (2006.01)

CPC (source: EP KR RU US)

C01B 3/12 (2013.01 - EP KR RU US); **C01B 3/38** (2013.01 - EP KR RU US); **C01B 3/56** (2013.01 - EP KR RU US); **C01C 1/04** (2013.01 - US); **C07C 29/00** (2013.01 - US); **C10B 27/06** (2013.01 - US); **C12P 7/06** (2013.01 - US); **C12P 7/30** (2013.01 - US); **C21B 5/06** (2013.01 - EP KR RU US); **C21B 7/00** (2013.01 - RU); **C21B 7/002** (2013.01 - KR US); **C21C 5/285** (2013.01 - US); **C21C 5/38** (2013.01 - EP KR RU US); **C25B 1/04** (2013.01 - EP US); **F01D 15/00** (2013.01 - US); **F02C 1/002** (2013.01 - US); **C01B 2203/0233** (2013.01 - EP KR US); **C01B 2203/0283** (2013.01 - EP KR US); **C01B 2203/043** (2013.01 - EP US); **C21B 2100/28** (2017.04 - EP US); **C21B 2100/60** (2017.04 - EP US); **C21B 2100/62** (2017.04 - EP US); **Y02E 50/10** (2013.01 - EP US); **Y02E 60/36** (2013.01 - EP US); **Y02P 10/143** (2015.11 - EP US); **Y02P 10/25** (2015.11 - EP US); **Y02P 20/133** (2015.11 - EP US)

Citation (opposition)

Opponent : Arcelormittal

- WO 0005421 A1 20000203 - IMPROVED CONVERTERS INC [US], et al
- WO 2012174313 A2 20121220 - RANGE FUELS INC [US], et al
- WO 9535393 A2 19951228 - BOREALIS TECHNICAL INC LTD [IL], et al
- GHANBARI ET AL.: "Optimal Design and Operation of a Steel Plant Integrated with a Polygeneration System", AICHE JOURNAL, vol. 59, no. 10, October 2013 (2013-10-01), XP055501257, DOI: 10.1002/aic.14098

Cited by

US10697031B2; WO2015086150A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

DE 102013113958 A1 20150618; AU 2014361205 A1 20160609; AU 2019203801 A1 20190620; AU 2019203801 B2 20200903; BR 112016012581 B1 20210316; CA 2930451 A1 20150618; CA 2930451 C 20210803; CN 105980582 A 20160928; CN 113073161 A 20210706; EP 3080306 A1 20161019; EP 3080306 B1 20181031; ES 2706765 T3 20190401; KR 102226641 B1 20210311; KR 20160097211 A 20160817; MX 2016006970 A 20170120; PL 3080306 T3 20190329; RU 2710492 C1 20191226; TW 201527539 A 20150716; TW I641691 B 20181121; UA 119340 C2 20190610; US 10697031 B2 20200630; US 2016326605 A1 20161110; WO 2015086150 A1 20150618

DOCDB simple family (application)

DE 102013113958 A 20131212; AU 2014361205 A 20141211; AU 2019203801 A 20190530; BR 112016012581 A 20141211; CA 2930451 A 20141211; CN 201480067677 A 20141211; CN 202110307524 A 20141211; EP 14815579 A 20141211; EP 2014003316 W 20141211; ES 14815579 T 20141211; KR 20167015520 A 20141211; MX 2016006970 A 20141211; PL 14815579 T 20141211; RU 2016128061 A 20141211; TW 103142591 A 20141208; UA A201607705 A 20141211; US 201415102518 A 20141211